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The Greening of BC's Exports

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Environmental issues have been propelled to the top of the political agenda in recent years and while this has created angst among many businesses that see only the challenges that new environmental standards will bring, there are others that see the new focus on the environment as a potential opportunity. They recognize that new environmental standards will require new technology to handle issues such as waste management, environmental monitoring, recycling and so on. If BC companies can get in on the ground floor, they can get the jump on developing a global market for made-in-BC environmental products as well as services provided by BC companies.

There is already interest around the world in some of the environmental products that BC has to offer. For example, China has expressed interest in technologies being developed in British Columbia, particularly those related to the environment. They have offered some funding as well as personnel to facilitate trade in these technologies between China and British Columbia. China is particularly keen on fuel cell technology, an area in which BC is among the world leaders. While this technology has not had much commercial success to date, there is potential for it to take off soon. For example, several auto-makers are developing fuel cell-powered vehicles using technology developed in British Columbia.

The recent visit by California Governor Arnold Schwarzenegger highlighted other potential opportunities for British Columbia's environmental industries. California is a prime market for environmental technology and the Governor's commitment to these technologies, including plans to build refuelling stations for hydrogen-powered vehicles across the Pacific Northwest, could provide a substantial pay-off for BC companies.

The environmental sector is already a significant employer in the province. According to a report prepared a few years ago by GLOBE Foundation of Canada, there were over 800 firms in BC in 2000 that provided goods and services that dealt with environmental issues and those firms employed over 22,000 people and generated revenues of more than $1.8 billion.[1] Trade in these goods and services is expanding and the share of total exports and imports comprised of environmental products is increasing.

While data on trade in environmental services for British Columbia is not readily available, an estimate of trade in environmental goods can be calculated using customs based export and import data from Statistics Canada. The federal government has developed a definition of

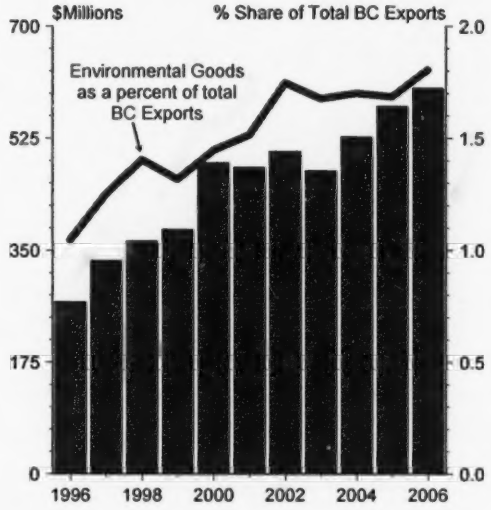
[1] GLOBE Foundation of Canada, *An Assessment of British Columbia's Environmental Business Sector*, November 15, 2003.

environmental goods using the Harmonized Commodity Description and Coding System (HS) for their submission to the World Trade Organization's Committee on Trade and Environment.[2] The goal of this committee was to reduce or eliminate tariff and non-tariff barriers to trade in environmental products.

The trade statistics reported here are based on the definition submitted July 3, 2006, which was a revision of an earlier submission. As a note of caution, it should be mentioned that the definition is based on six-digit codes in order to facilitate use among different nations, since HS coding schemes are the same up to six digits. However, at this level of aggregation, the code may capture more than just the environmental goods that we are interested in. Also, many of the products in the list may have alternate, non-environmental uses; therefore, the figures presented here likely overestimate actual trade in environmental goods. Nevertheless, it can be seen from the data that trade in environmental goods has been rising over the last decade.

Between 1996 and 2006, the value of BC exports of environmental goods more than doubled, climbing from $268.8 million to $603.0 million. The share of total commodity exports is still small, at 1.8%, but this is up from only 1.0% in 1996. The main types of goods that BC exports are those related to waste water management, equipment associated with renewable energy, environmental monitoring equipment, and goods connected with air pollution control. Another potential growth area is with regard to clean technologies, particularly fuel cells.

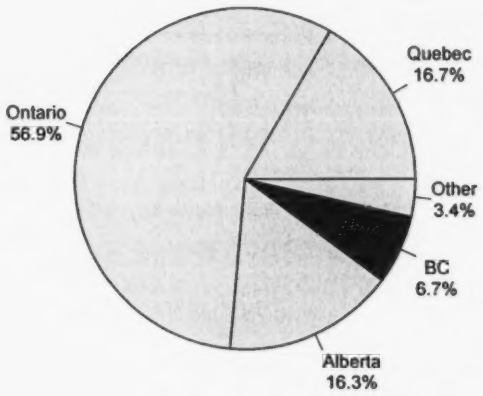
Exports of made-in-BC environmental goods have been trending up over the last decade



British Columbia's share of Canadian exports of environmental goods has remained fairly static over the last decade, generally between six and seven percent. However, given the types of technologies currently being developed in the province and the higher propensity of people in BC for accepting new technologies and for seeking environmental alternatives, British Columbia is poised to take a larger role in the environmental sector, including international trade in environmental goods. In his recent visit to BC, the California Governor suggested that both California and British Columbia are on the brink of a new "gold rush" as tough new environmental standards will create substantial economic opportunities for the two regions. If he is correct, BC's share of Canadian exports of environmental goods should expand significantly in the next several years.

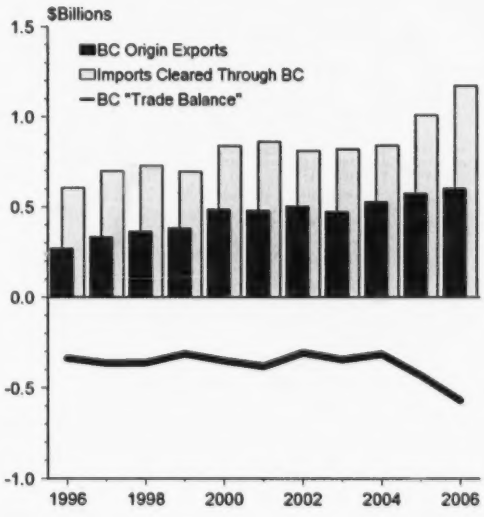
[2] World Trade Organization, *Canada's Revised List of Environmental Goods*, TN/TE/W/50/Rev. 1, July 4, 2006.

British Columbia's share of Canada's environmental goods exports is relatively small



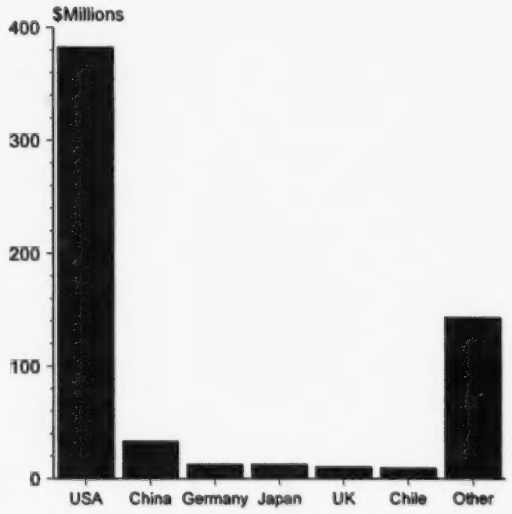
Currently, it appears that British Columbia imports more environmental goods than it exports. Although data on imports consumed in BC are not available, based on the value of imports cleared through BC's customs ports, it seems clear that BC has a deficit in trade of environmental goods with other countries.

BC appears to import more environmental goods than it exports



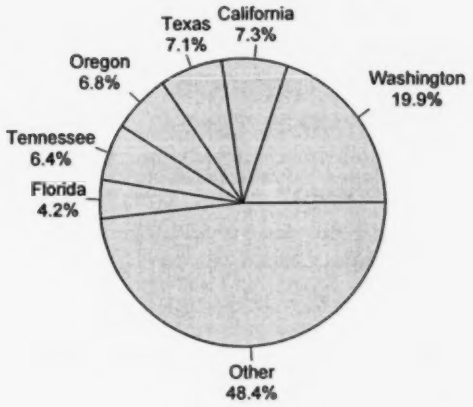
The large majority of BC's exports of environmental goods are destined for the United States. In 2006, almost 64% of all "green" goods exported from BC were shipped to the US, which is slightly higher than the proportion of total BC exports shipped to that country (61%). Mainland China was ranked second with just over 5% of BC's environmental commodity exports shipped there. Given China's eagerness to help BC companies further develop green technology, that figure could rise over the next several years.

As with total exports, the United States is the destination for most environmental goods exports



Within the United States, over half of BC's green exports were shipped to just six states in 2006. Neighbouring Washington State was by far the most significant destination for BC environmental products, taking in 20% of total exports to the United States. California, Texas and Oregon all imported about 7% of BC's environmental exports to the United States.

Over half of BC's exports of environmental goods to the US are destined for just six states



Environmental goods still make up a relatively small part of BC's exports, but there is great potential for growth. Demand from rapidly developing countries such as China and India will be one driver of expansion in this sector. The industrialization and urbanization occurring in these countries will create the need for air pollution control, wastewater treatment, solid waste disposal, and so on. In addition to the demand from developing nations, the effects of climate change and regulatory changes related to environmental measures designed to curb greenhouse gases and other potentially damaging pollutants will create economic opportunities for companies providing the necessary products and services. There is a lot of promise for British Columbia in areas such as alternative energy systems, which include fuel cell development, water and wastewater technologies, air quality controls and sustainable resource management. If BC companies are willing to take the initiative, technologies developed in BC could help make it a little easier being green and those companies should see a lot more green in the way of profits for their efforts.

TABLE 1
Exports of Environmental Goods by Province 1996-2006 ($Cdn)

	1996	1997	1998	1999	2000	2001
Newfoundland & Lab.	1,936,721	819,593	1,473,144	1,452,876	1,996,075	3,259,659
Prince Edward Is.	9,787,780	10,700,249	9,444,002	12,145,745	11,311,298	9,086,201
Nova Scotia	20,049,547	25,733,471	38,812,324	33,574,356	48,336,996	55,593,651
New Brunswick	17,923,561	16,541,970	15,512,014	12,676,731	25,628,038	35,002,975
Quebec	851,151,925	904,399,421	900,838,649	1,010,925,034	1,180,331,439	1,242,851,259
Ontario	3,078,173,282	3,323,973,414	3,575,286,078	4,022,891,572	4,341,265,280	4,541,753,972
Manitoba	66,892,982	57,042,006	73,977,827	88,286,879	102,630,596	108,431,881
Saskatchewan	12,869,939	18,357,495	20,678,404	16,330,388	24,418,827	30,944,506
Alberta	366,370,423	365,608,035	568,026,355	412,134,094	594,065,209	751,169,282
British Columbia	268,801,310	333,826,879	364,143,551	382,163,892	486,075,720	479,136,560
Yukon	0	144,483	68,340	553,783	4,867	142,703
Northwest Terr.	453,778	21,238	0	69,978	0	48,530
Nunavut	0	0	0	0	0	25,462
CANADA	4,694,411,248	5,057,168,254	5,568,260,688	5,993,205,328	6,816,064,345	7,257,446,641

	2002	2003	2004	2005	2006
Newfoundland & Lab.	6,021,069	6,882,049	5,420,941	2,899,076	10,240,515
Prince Edward Is.	10,884,441	11,564,592	17,179,184	16,546,628	17,806,050
Nova Scotia	44,667,088	45,122,611	66,743,801	68,460,754	74,108,803
New Brunswick	43,478,381	38,656,103	38,655,229	41,134,669	52,668,355
Quebec	1,228,063,075	1,183,663,566	1,303,948,258	1,367,009,053	1,512,925,224
Ontario	4,681,014,602	4,562,221,131	4,825,525,492	4,817,337,023	5,160,276,925
Manitoba	114,566,781	110,913,847	136,502,484	126,555,999	109,273,766
Saskatchewan	41,775,667	29,117,810	40,625,093	39,273,706	46,890,110
Alberta	834,396,658	879,669,630	1,078,147,573	1,167,726,435	1,475,085,077
British Columbia	503,608,014	473,609,647	526,851,995	574,578,143	602,985,300
Yukon	266,648	318,724	530,957	377,969	63,425
Northwest Terr.	137,226	97,902	6,282	51,937	47,382
Nunavut	1,245	262,253	303,190	180,967	191,588
CANADA	7,508,880,895	7,342,099,865	8,040,440,479	8,222,132,359	9,062,562,520

TABLE 2
Imports of Environmental Goods by Province of Clearance 1996-2006 ($Cdn)

	1996	1997	1998	1999	2000	2001
Newfoundland & Lab.	18,239,489	19,249,907	22,113,205	60,396,069	285,269,367	39,902,026
Prince Edward Is.	1,078,024	1,392,384	1,130,136	935,117	451,855	412,687
Nova Scotia	61,811,869	87,812,067	134,421,231	110,201,980	102,079,361	88,980,316
New Brunswick	74,110,211	81,860,948	102,487,978	172,590,088	169,525,580	103,754,460
Quebec	1,224,169,152	1,286,588,449	1,578,183,047	1,842,403,821	1,890,430,731	2,075,606,270
Ontario	6,645,869,348	8,388,233,131	8,946,687,626	10,266,585,809	11,180,625,086	10,658,775,508
Manitoba	345,561,290	415,213,081	532,024,387	543,477,590	692,414,732	690,942,689
Saskatchewan	242,714,325	316,594,838	424,108,435	347,544,508	333,666,930	409,613,880
Alberta	927,637,082	1,322,336,839	1,210,648,952	1,214,167,462	1,334,746,184	1,625,094,500
British Columbia	606,603,996	698,552,007	728,146,579	695,678,785	838,079,682	862,203,521
Yukon	3,195,346	2,371,720	961,199	2,741,069	5,407,770	3,545,799
Northwest Terr.	48,184	13,488	132,937	161,353	50,888	25,426
Nunavut	0	0	0	7,294	0	0
CANADA	10,151,038,316	12,620,218,859	13,681,045,712	15,256,890,945	16,832,748,166	16,558,857,082

	2002	2003	2004	2005	2006
Newfoundland & Lab.	24,828,369	58,893,136	44,722,091	48,796,779	34,930,001
Prince Edward Is.	757,959	5,806,298	4,392,829	1,764,069	581,473
Nova Scotia	87,788,549	211,952,551	174,830,003	101,807,657	477,626,466
New Brunswick	123,279,385	123,906,282	127,078,720	101,226,140	104,901,188
Quebec	2,036,060,435	1,934,274,029	2,099,395,331	1,945,168,929	2,016,295,862
Ontario	10,622,167,401	9,571,977,019	9,611,722,402	9,670,290,703	9,510,963,511
Manitoba	638,032,596	641,994,369	683,827,422	865,729,407	969,036,720
Saskatchewan	325,270,545	349,912,307	379,726,597	497,593,945	537,955,079
Alberta	1,554,993,173	1,389,349,230	1,456,190,613	1,636,204,444	1,922,812,053
British Columbia	810,311,386	819,555,018	841,173,624	1,008,641,911	1,172,776,194
Yukon	6,720,608	4,045,821	10,469,749	7,527,244	5,761,437
Northwest Terr.	27,165	8,212	36,437	3,025	424
Nunavut	0	0	0	0	0
CANADA	16,230,237,571	15,111,674,272	15,433,565,818	15,884,754,253	16,753,640,408

TABLE 3
BC Exports by Type of Environmental Good

	1996	1997	1998	1999	2000	2001
Air Pollution Control	28,788,793	36,290,438	30,984,043	29,514,960	33,494,003	50,349,804
Clean Technologies, Processes and Products	9,111,068	4,293,021	5,032,785	3,691,741	4,798,577	3,460,982
Environmental Monitoring, Analysis and Assessment Equipment	100,325,477	56,489,263	76,827,995	81,697,744	94,042,116	115,367,505
Heat and Energy Management	51,608,046	11,219,842	8,598,523	8,074,720	8,893,877	5,529,043
Potable Water Treatment	14,853	1,334,936	842,455	1,099,473	4,990,102	5,618,151
Remediation/Clean-Up of Soil and Water	449,195	3,753,775	6,030,433	8,838,040	12,554,357	9,804,704
Renewable Energy Plant	35,434,204	81,001,135	94,297,171	104,806,601	164,706,041	112,411,799
Recycling Systems	3,982,650	4,803,291	3,075,724	7,140,977	4,666,396	5,919,246
Soil Conservation	565,755	0	0	0	17,326	22,354
Solid/Hazardous Waste Management	4,492,076	60,433,290	68,586,713	59,814,646	64,465,464	77,808,036
Waste Water Management	34,029,193	74,207,888	69,867,709	77,484,990	93,447,461	92,844,936

	2002	2003	2004	2005	2006
Air Pollution Control	51,091,437	41,938,828	41,717,615	48,582,504	78,472,052
Clean Technologies, Processes and Products	3,425,758	2,926,829	3,151,857	3,522,312	4,814,640
Environmental Monitoring, Analysis and Assessment Equipment	130,418,081	107,848,022	122,270,184	130,753,276	145,818,633
Heat and Energy Management	10,007,301	9,139,168	12,390,268	25,959,762	22,767,106
Potable Water Treatment	1,255,870	2,149,817	915,708	946,851	1,215,807
Remediation/Clean-Up of Soil and Water	10,461,339	6,310,142	3,264,877	4,295,202	4,151,226
Renewable Energy Plant	94,144,767	117,311,452	142,013,589	146,316,021	154,580,134
Recycling Systems	8,136,521	6,028,668	6,480,761	10,575,175	15,282,799
Soil Conservation	35,239	0	0	10,997	0
Solid/Hazardous Waste Management	82,497,120	79,207,050	81,057,337	69,259,255	61,674,198
Waste Water Management	112,134,581	100,749,671	113,589,799	134,356,788	114,208,705

TABLE 4
Imports Cleared Through BC by Type of Environmental Good

	1996	1997	1998	1999	2000	2001
Air Pollution Control	58,934,551	66,608,363	70,665,072	71,075,352	91,814,884	97,949,192
Clean Technologies, Processes and Products	16,177,390	20,901,429	19,859,835	22,453,540	22,924,872	28,314,172
Environmental Monitoring, Analysis and Assessment Equipment	136,100,996	167,083,175	172,976,511	136,304,071	188,114,765	181,907,897
Heat and Energy Management	15,772,075	19,035,919	22,179,326	22,587,521	16,572,749	31,116,993
Potable Water Treatment	7,809,508	8,511,754	5,332,943	7,255,498	9,191,432	11,131,694
Remediation/Clean-Up of Soil and Water	2,103,641	2,069,738	1,067,663	1,282,948	2,619,931	4,160,205
Renewable Energy Plant	124,040,840	134,272,241	152,324,397	131,757,482	160,940,690	183,687,075
Recycling Systems	2,571,724	6,096,009	7,550,459	3,881,912	3,791,550	6,104,039
Soil Conservation	428,620	384,603	548,612	518,088	1,051,704	845,822
Solid/Hazardous Waste Management	97,140,494	81,083,293	73,923,302	83,430,569	101,089,557	81,056,754
Waste Water Management	145,524,157	192,505,483	201,718,459	215,131,804	239,967,548	235,929,678

	2002	2003	2004	2005	2006
Air Pollution Control	89,458,087	87,585,930	112,117,550	129,103,424	116,885,406
Clean Technologies, Processes and Products	29,177,044	17,768,925	20,380,516	18,824,754	42,798,125
Environmental Monitoring, Analysis and Assessment Equipment	180,465,136	188,311,609	186,077,976	237,483,370	238,898,195
Heat and Energy Management	26,574,234	37,612,788	45,025,250	43,604,051	42,862,763
Potable Water Treatment	11,151,021	11,588,585	13,995,367	28,423,558	49,468,920
Remediation/Clean-Up of Soil and Water	4,040,101	6,786,172	5,004,203	7,248,906	7,635,032
Renewable Energy Plant	159,943,393	176,771,884	148,136,023	153,126,322	245,292,835
Recycling Systems	3,029,344	5,133,342	7,535,020	7,916,381	14,030,845
Soil Conservation	940,846	1,029,927	1,574,384	1,505,086	652,671
Solid/Hazardous Waste Management	86,146,531	83,326,050	65,629,072	101,064,689	83,537,679
Waste Water Management	219,385,649	203,639,806	235,698,263	280,341,370	330,713,723

TABLE 5
BC Origin Exports of Environmental Goods by Top 20 Destinations, 2006

Destination Country	Value $Cdn	% Total
United States	382,732,912	63.5%
China, P. Rep.	32,933,746	5.5%
Germany	12,609,040	2.1%
Japan	12,570,171	2.1%
United Kingdom	10,078,707	1.7%
Chile	9,187,364	1.5%
Russia	8,908,826	1.5%
Australia	8,890,048	1.5%
Taiwan	8,342,058	1.4%
Pakistan	6,679,659	1.1%
Korea, South	6,549,689	1.1%
Colombia	5,797,604	1.0%
Saudi Arabia	5,760,786	1.0%
Mexico	5,519,002	0.9%
India	4,974,330	0.8%
Ireland	4,523,912	0.8%
France	4,419,665	0.7%
Turkey	4,289,218	0.7%
Singapore	4,011,874	0.7%
Peru	3,468,221	0.6%
Other	60,738,468	10.1%
Total	**602,985,300**	**100.0%**

TABLE 6
BC Exports of Environmental Goods by Top 20 States of Destination 2006

Destination State	Value $Cdn	% Total
Washington	76,330,107	19.9%
California	27,975,074	7.3%
Texas	27,063,674	7.1%
Oregon	25,877,485	6.8%
Tennessee	24,415,318	6.4%
Florida	15,911,381	4.2%
Illinois	10,507,010	2.7%
Georgia	9,756,571	2.5%
North Carolina	9,645,240	2.5%
Ohio	9,552,986	2.5%
Minnesota	9,250,402	2.4%
Arizona	9,135,303	2.4%
Wisconsin	7,637,446	2.0%
Louisiana	6,491,793	1.7%
Pennsylvania	6,276,201	1.6%
Michigan	6,174,976	1.6%
Alaska	6,027,979	1.6%
Arkansas	5,882,207	1.5%
New York	5,601,149	1.5%
South Carolina	5,375,668	1.4%
Other	77,844,942	20.3%
Total	**382,732,912**	**100.0%**